Price Policy and Fish Marketing System in India

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Fisheries form an important sector of the Indian economy. Both as a nutritive food item for internal consumption and as a commodity that can earn foreign exchange, its importance is well known. Fisheries contribute about three per cent of our GDP (1993). Surrounded by sea on the three sides of mainland, India has a vast potential of marine resources. The Exclusive Economic Zone (EEZ) of India which extends upto 200 nautical miles, covers an area of 2.02 million sq.km. against its land area of 3.29 million sq.km. In the marine sector, fish are procured from 2244 landing centres located all along the 8085 km of coast line. The supply from inland sector is also scattered which is obtained from 27,000 km of rivers, 1,13,000 km of canals, 1.75 million hectare of tanks, ponds and derelict water spread area. The total fish production during 1992-93 was estimated at 4.04 million tonnes, 2.24 million tonnes from marine sector against the estimated potential yield of 3.9 million tonnes and 1.8 million tonnes from he inland sector against the estimated potential of 4.0 million tonnes. The growth of fish production and development of fishery sector is highly dependent on an efficient fish marketing system. Further, the survival and sustenence of different harvesting techniques of capture fisheries soley depends on their profitability which is interlinked with the market demand and price of different varieties of fish.

Harvesting and marketing of fish provides enormous employment opportunities. The post harvest operations of fish, provides more employment to labour than the production sector. Large number of intermediaries are involved before fish reaches the hands of ultimate consumer. An efficient Price Policy of fish or any other commodity aims at to ensure the services of middlemen at minimum cost. In other words, the pricing efficiency is concerned with improving the operation of buying, selling and other connected aspects of marketing process so that it will remain responsive to consumer behaviour. Further, modern fish marketing policy should envisage not only meeting the existing demand for fish but also tapping the potential demand.

Production Trend and Supply Prospects

The fish output comes from marine and inland resources. The total fish production during 1992-93 is 4.04 million tonnes. The fish production has registered an annual growth rate of 5.2 per cent in the inland sector and 3.8 per cent in the marine sector over the year from 1950-51 to 1992-93.

Both inland and marine fish marketing are more or less identical on many aspects. However, marine fish marketing is more complicated due to its high degree of uncertainity and other special features. Hence, more emphasis is given for marine fish marketing in the present analysis. The present level of exploitation of marine fisheries is about 66.7 per cent of the total estimated potential of 3.9 million tonnes. The details of the length of the coastal line, continental shelf area, number of landing centres and number of fishing villages in various maritime states of India are given in Table 1.

Table 1 : Details of statewise, coastline, continental shelf area, landing centres and fishing villages.

	States/Union Territories	Apprx. length of coastal line (Km)	Continental shelf area ('000 Sq. Km.)	Number of landing centres	No. of fishing villages
1.	Andhra Pradesh	947	31	379	409
2.	Goa	87	10	87	91
3.	Karnataka	300	25	29	204
4.	Gujarat	1600	164	773	771
5.	Kerala	590	40	226	222
6.	Maharashtra	720	112	184	386
7.	Orissa	480	32	62	329
8.	Tamil Nadu	1000	41	362	442
9.	West Bengal	157	17	47	652
10.	Andaman & Nicobar Islands	2000	35	57	45
11.	Lakshadweep	132	4	11	10
12.	Pondicherry	45	1	28	45
	Total	8085	512	2244	3606

Source: 1. Mar. Fish. Infor. Serv. T & E Ser., No. 30
2. Hand book on fisheries, P. 32,

Marine fishery resources available in the near shore areas extending upto 50m depth are almost fully exploited in India. The estimated landings of demersal and pelagic groups of marine fish is presented in the Table 2. The unexploited and under-exploited resource beyond 50m depth is estimated to be 1.7 million tonnes. Among the exploited pelagic resources, there is enormous scope to increase the catch and supply of white baits, carangids, ribbon fishers and tunas. The total potential yield of white baits from the EEZ is estimated to be 0.24 million tonnes as against the current yield of 0,07 million tonnes. Carangids have an estimated potential stock of 0.27 million tonnes against the current yield of 0.1 million tonnes. Ribbon fishes have an estimated potential of 0.27 million tonnes and oceanic tuna 0.5 million tonnes offering considerable scope for additional catch with the improvement of fish marketing system and development of consumer awareness and preference.

The non conventional resources like "Bull's eye"*(Priacanthus spp.),* Indian drift fish *(Psenes indicus)* and "The black ruff" *(Centrolophus niger)* abundantly available in our deep sea are almost unexploited. "The Bull's eye" is having good demand in Singapore, Thailand, Taiwan and Hongkong and is caught in sizeable quantities by foreign vessels from our waters. The domestic market for this variety is yet to be established. The nutritive quality of the black ruff equals any other familiar table fish with protein (14.9%) and fat (5.8%) contents, there is ample scope for its acceptance in local markets. At times some varieties are not caught for fear of low prices due to glut and those caught are thrown over board. Product development and sales promotion activities for non conventional fish varieties have to be geared up to

make the cost intensive deep water fishing into a viable economic activity.

differently from agriculture or mining industry, in relation to their catch and utilisation. Agriculture

Table 2 : Estimated production of pelagic and demersal groups of fishes

(in tonnes)

	Name of fishes	1990	1991	1992
I.	**Pelagic group:**			
1.	Clupeids	533376	537176	469915
2.	Bombay duck	130234	136450	127164
3.	Half breaks & full breaks	2503	2543	2389
4.	Flying fishes	941	5619	4917
5.	Ribbon fishes	74301	95428	111021
6.	Carangids	141787	168626	189737
7.	Mackerels	184402	113675	133885
8.	Seer fish	29841	37408	42894
9.	Tunnies	52060	36248	42275
10.	Bill fishes	1048	791	1387
11.	Baracudas	11125	13373	12399
12.	Mullets	9903	6602	5114
13.	Unicom cod	253	1492	1188
14.	Miscellaneous	42225	41806	42218
	Total	1213999	1197237	1186503
II.	**Demersal group:**			
1.	Elasmobranchs	93772	97310	105038
2.	Lizard fishes	24840	27573	28939
3.	Perches	120778	103136	114403
4.	Goat fishes	21665	33298	17242
5.	Thread fins	6882	7849	7811
6.	Croakers	119224	145584	161843
7.	Silverbellies	53876	52133	51383
8.	Big jawed jumper	8632	9794	6575
9.	Pomfrets	39862	42649	33909
10.	Flat fishes	29887	37270	63344
11.	Crustaceans	336623	384473	379990
12.	Molluscs	56237	67565	90678
13.	Miscellaneous	36003	36579	39193
	Total	948271	1100342	1045213
	Grand total	21,62,270	22,97,579	22,31,716

Source: CMFRI, Annual Report 1992-93

Special Features of Fish Production and Marketing

Fisheries resources have some special features which have implications for its production and marketing. The marine fishery has to be considered

deals with many varieties of crops of different nature to be handled in a known area where the progress of the growing crops can be watched regularity and continuously and adequate protection measures can be taken, on the standing crops if required. In the case of mineral resources, the

production (mining) after the estimation will be a question of tapping the known and fixed resources. But fish is wet and highly perishable. It is a common property resource, and the methods of estimation, capture and availability of different varieties of fish is of different nature as the resources are mostly migrating, invisible although renewable. The raw materials are the living resources like fish which are caught in different waters but are to be brought to a few selected centres, either on the coast (fishing harbours) or on the seas (factory ships) for handling and utilising them in different ways.

In fish marketing, the general hypothesis is that conditions of monopsony and oligopsony characterize the fish marketing structure in India at the various stages and hence fishermen do not get advantage of the high price prevelant in the consumer markets. Basic economic theory indicates that in the perfectly competetive market no actor of production earns more than its opportunity cost and pure profit cannot exist in the long run because it is eliminated through competition. If a market is dominated by a single buyer it is called monopsony, with two buyers it is duopsony; more than two but not too many as oligopsony and monopsonistic competition. Under imperfect competition, which include monopsony, oligopsony and monopsonistic competition, pure profit is expected to be positive in the long-run equilibrium and it cannot be explained wholly in terms of the opportunity cost of the services provided by the middlemen.

Characteristics of Marine Fish Marketing

1. Greater Uncertainities in fish production and hence in the supply of fish.
2. High perishability of fish.
3. Assembling of fish from too many coastal landing centres.
4. Too many varieties and hence too many demand patterns.
5. Wide spatial and temporal variations in market arrivals and prices.
6. Dis-equilibrium of demand and supply.
7. Difficulty in maintaining the quality of fish.
8. Lack of proper infrastructural facilities for storage, preservation, processing and transport at various stages of marketing.
9. Lack of information on fish price and production.

Price Determination for Fish

The price of fish fluctuates far higher than any other agricultural commodity. The price changes may be due to changes in supply besides due to the prices of other fish varieties in the market. The variation of fish prices at all stages of transactions is attributed to the uncertain nature of fish production and perishability.

Price is determined by the interaction of demand and supply at both producing centres and consumer markets. At landing centres, the market demand is the aggregate demand from wholesalers which is indicated by the number of trucks, cyclevendors, retailers and individual purchasers arrived at the centre. (Plate 1). The short run demand is more or less stable. The demand will be high either in the morning or evening hours, depending on the timing of the consumer markets. Hence some times, the retailers are prepared to pay high price for fish in the morning without worrying about the increased supply at the later part of the day. The short run supply of fish is highly inelastic and unpredictable.

The price determination of fish can be theoretically explained as follows. Let us consider the variety to the mackerel. (Figure 1) If the supply of mackerel is OQ_1 the possible price is P1 which is the actual market price as demand curve DD is cutting at the point E in the supply curve SS. The supply of market is equal to its arrival. So the traders are willing to sell their entire holdings for whatever price they can get. Hence the supply curve of the perishable good is a vertical line and it indicates the total supply in the market. Price mechanism here performs an important function of allocating variable supply of mackerel. If the price is lower than P^1 (Say PO) the quantity demanded would be larger than supply. The shortage is

denoted by AB in the figure and hence there would be an increase in price. Similarly if the supply is reduced to S^1S^1 then the price would be higher (P_2).

price becomes P_2 and then there would be a surplus of ML quantity which would be glutted in the market. If P_2 is fixed as support price the excess supply of fish can be purchased at the support

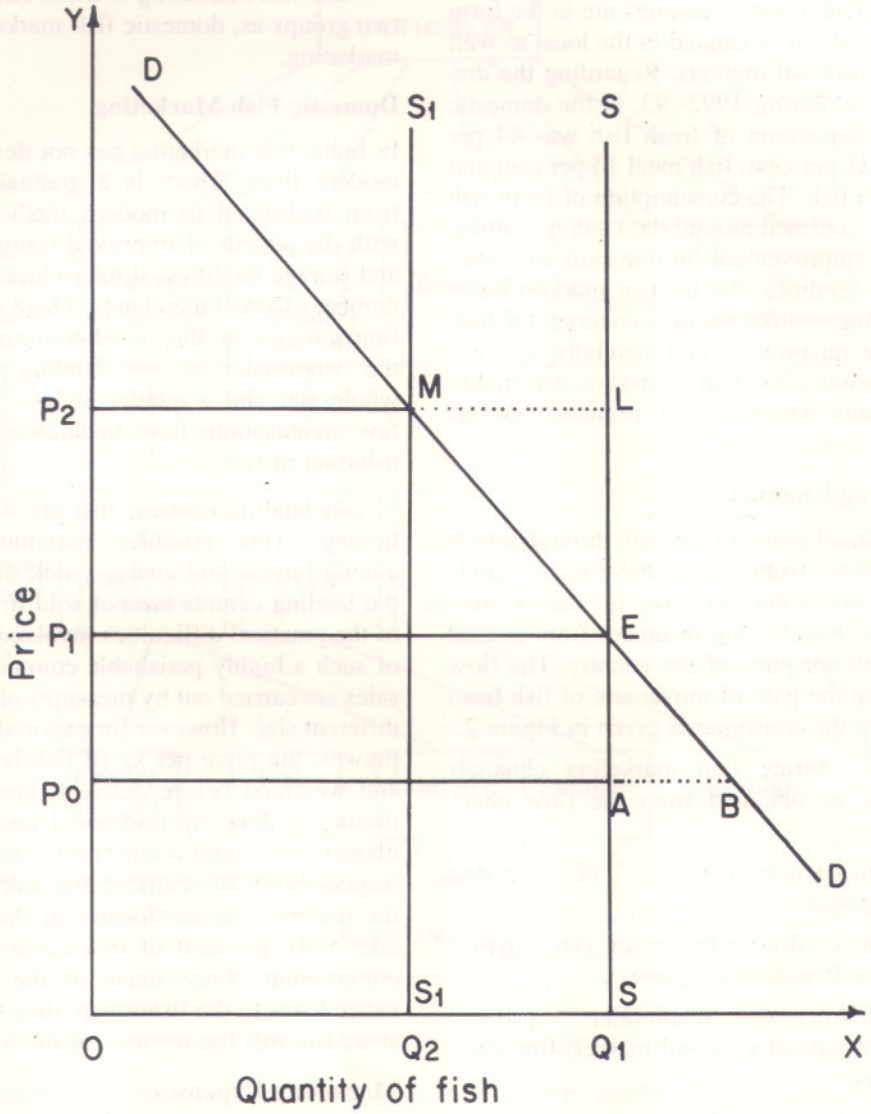

Figure 1 : Price determination of fish

If the supply in a particular day is OQ_1 (SS curve) and the demand is OQ_2 then the market level, so that the higher price level of P_2 can be maintained. Otherwise fishermen have to reduce

the supply from OQ_1 to OQ_2 either by reducing production or diverting the product to the interior markets or for curing and processing plants.

Distribution Pattern of Fish and Marketing Structure in India

The supply of fish to the consumers are in the form of fresh frozen, dried or canned in the local as well as in the international markets. Regarding the distribution pattern, during 1992- 93, in the domestic market, the composition of fresh fish was 44 per cent; dry fish 31 per cent, fish meal 13 per cent and the rest canned fish. The consumption of fresh fish was originally confined around the landing centres. Now with the improvement in transport and other infrastructural facilities, the interior markets away from the landing centres are also covered. Of late, a considerable quantity of commercially less important fish varieties and fish wastes are diverted to fish meal plants which are of immense use as poultry feed.

Fish Marketing Channel

Marketing channel refers to the path through which the product passes from the producer to the hands of ultimate consumer. In case of marine fish marketing, fish travels long distances from coastal areas to the interior parts of the country. The flow chart indicating the path of movement of fish from the producer to the consumer is given in Figure 2.

The usual marine fish marketing channels prevailing can be obtained from the flow chart. They are,

1. Fishermen-Auctioneer-Agents of freezing plants-Exporters.
2. Fishermen-Auctioneer-Processor (Dry fish) - Wholesaler-Retailer-Consumer.
3. Fishermen-Auctioneer-Wholesaler (primary market) -Wholesaler (Retail market)-Retailers-Consumers.
4. Fishermen-Auctioneer-Commission agents-Wholesaler-Retailer- Consumers.
5. Fishermen-Auctioneer--Retailer-Consumer.
6. Fishermen-Auctioneer-Consumer.

The major portion of the internal fish marketing takes place through 3-6th channels. The auctioneers of the primary market and commission agents of the secondary market are also involved in the process without taking possession of the fish.

The fish marketing in India can be divided into two groups as, domestic fish marketing and export marketing.

Domestic Fish Marketing

In India, fish marketing has not developed fully on modern lines. There is a gradual transformation from traditional to modern method of marketing with the advent of improved transport, processing and storage facilities. at micro level, there are large number of small merchants. There are four types of functionaries at this level-commission agent and the wholesaler at the landing centre, interior wholesaler and a retailer at last. At macro level, few organisations have undertaken the whole distribution of fish.

At landing centres, fish are disposed by auctioning. This provides maximum competition among buyers and enable quick disposals. Fish at the landing centres are not sold in weight because of the practical difficulties involved in the handling of such a highly perishable commodity. Hence the sales are carried out by measures of heaps or lots of different size. However for exportable varieties like prawns, the price per kg of fish is fixed by action and weighted before delivery. Generally the auctioning is done by traditional auctioneer or middlemen on commission basis who take up the responsibility of realising the sale proceeds from the traders. The auctioneers at the landing centre take 5-10, per cent of fish auctioned by them as commission. Since many of the auctioneers advance loans to the fishermen, they take a portion of share towards the interest for the loan given.

Marketing Expenses

Marketing expenses in fish marketing refers to the charges incurred for the handling and transportation of fish during its movement from the production point to the consumption point.

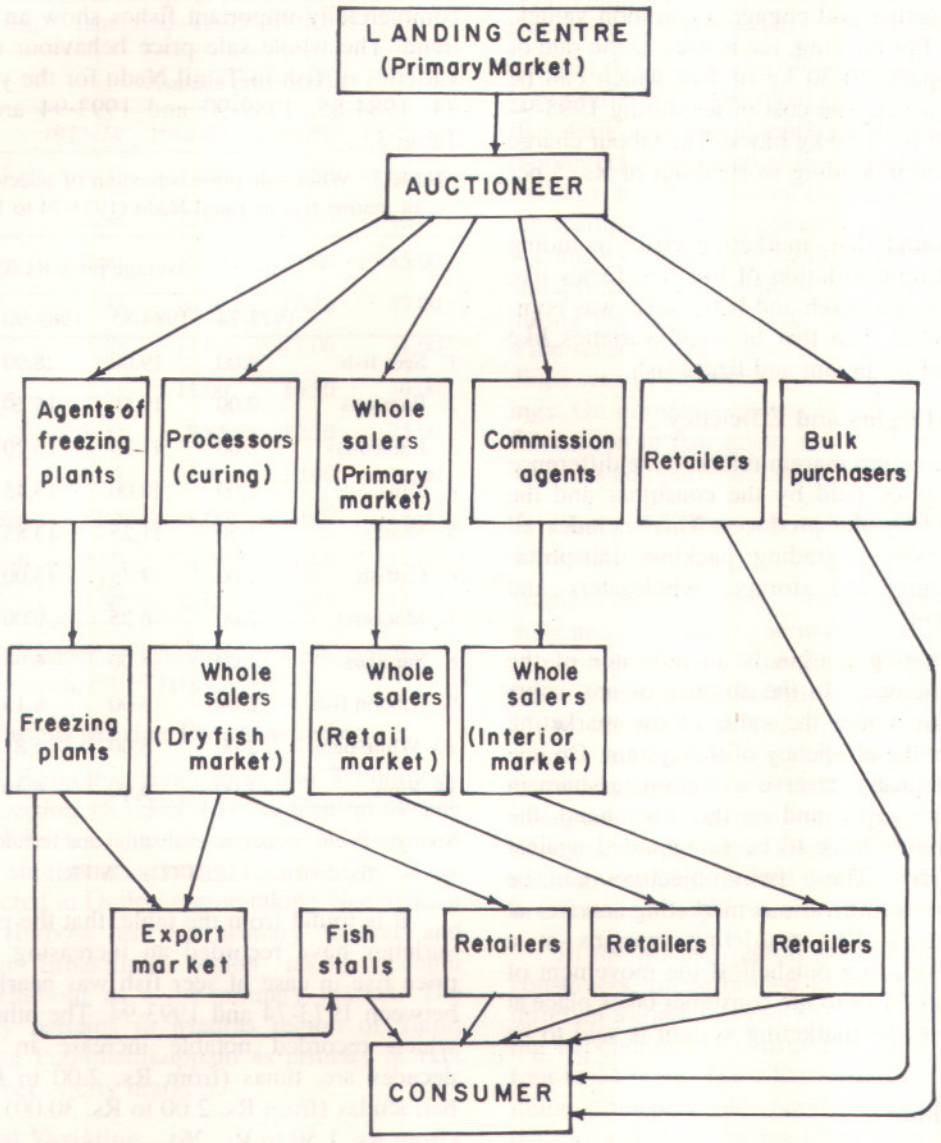

Figure 2 : Flow chart showing the fish marketing channels

The fish passes through a number of hands before reaching the ultimate consumer. Due to its perishable nature, proper preservation and handling is vital. Bamboo baskets are mostly used to pack the fish which is around Rs. 25/- and one basket can be used only for about a month. For transportation of fish, trucks, tempos, motorized cycle rickshaws and bicycles are used generally. During 1993-94, the freight charges for a truck load was Rs. 5-6 per km. In Madras region, the transport of fish from landing centres to wholesale and retail markets is mostly through motorized cycle rick-

shaws. Some times, retailers with less quantity of fish group together and engage a common vehicle for transport. For packing, ice is used at the rate of 20-25 kg to pack 20-30 kg of fish which can be packed in a basket. The cost of ice during 1993-94 was Rs. 25-30 for a 50 kg block. The labour charge for loading and unloading worked out of Rs. 5 per basket.

It was found that, marketing costs including handling and transportation of big size fishes like seer fish, giant sea perch and barracudas was comparatively higher than that of small varieties like sardine, thread fin bream and lizard fish.

Marketing Margins and Efficiency

The gross marketing margin refers to the difference between the price paid by the consumer and the price received by the producer. This includes all costs of assembling, grading, packing, transportation, processing and storage, wholesalers and retailers margin.

The marketing margin is an indicator of the marketing efficiency. In the absence of any value added process, higher the value of the marketing margin, lower the efficiency of the system. On one hand, the producers deserve a legitimate share in the consumer's rupee and on the other hand, the consumer's rights have to be safeguarded against excessive prices. These twin objectives can be achieved by ensuring various marketing services at reasonable costs. i.e., restricting margins at a reasonable level. In a nutshell, if the movement of goods from producer to the consumer takes place at minimum cost, the marketing system is said to be efficient.

Price Behaviour

The fluctuation in prices of fish is very high because of the uncertain nature of production, perishable nature and variation in short run supply. Because the supply of fish is highly inelastic, a bumper catch on any day will slash down the fish prices and a small catch will boost the prices to very high levels.

A study undertaken in Tamil Nadu has clearly pointed out that, despite a wide short-term fluctuation in the fish prices, the average annual prices of commercially important fishes show an increasing trend. The whole sale price behaviour of selected varieties of fish in Tamil Nadu for the years 1973-74, 1984-85, 1989-90 and 1993-94 are given in Table 3.

Table 3 : Wholesale price behaviour of selected varieties of marine fish in Tamil Nadu (1973-74 to 1993-94)

	Average price Rs./kg			
	1973-74	1984-85	1989-90	1993-94
1. Seer fish	4.00	19.00	28.90	58.00
2. Pomfrets	2.00	17.50	15.20	35.00
3. Baracudas	2.00	11.25	15.20	30.00
4. Tuna	2.00	10.00	13.45	30.00
5. Sharks	1.50	11.25	13.85	26.00
6. Catfish	1.00	7.75	13.00	20.00
7. Mackerel	2.00	6.25	9.00	23.00
8. Sardines	1.00	4.00	6.90	13.00
9. Ribbon fish	2.00	5.00	6.15	10.00
10. White baits	2.00	5.00	5.85	15.00
11. Rays	1.00	6.00	6.40	12.00

Source : Socio economic evaluation and technology transfer division, (SEETTD), CMFRI.

It is found from the table, that the prices of all varieties have recorded an increasing trend. The price rise in case of seer fish was nearly 16 times between 1973-74 and 1993-94. The other varieties which recorded notable increase in these two decades are, tunas (from Rs. 2.00 to Rs. 30.00), barracudas (from Rs. 2.00 to Rs. 30.00) and sharks (from Rs. 1.50 to Rs. 26).

The average retail price behaviour of selected varieties of marine fish during 1973-74, 1984-85, 1989-90 and 1993-94 are given in Table 4. In the retail price, seer fish recorded seven- fold increase during the period from 1973-74 to 1993-94. The prices of other varieties also increased considerably through these years. The increase is higher than all other food articles.

Table 4 : Retail price behaviour of selected varieties of marine fish in Tamil Nadu (1973-74) to 1993-94)

	Average price Rs./kg			
	1973-74	1984-85	1989-90	1993-94
1. Seer fish	9.00	27.00	35.50	66.00
2. Pomfrets	2.50	22.80	29.50	40.00
3. Baracudas	2.50	15.35	21.00	35.00
4. Tuna	3.00	16.50	18.50	39.00
5. Sharks	2.50	17.00	17.00	31.00
6. Catfish	2.50	11.00	16.50	30.00
7. Mackerel	3.00	9.85	12.50	25.00
8. Sardines	2.00	6.70	10.00	16.00
9. White baits	3.00	8.00	9.00	18.00
10. Ribbon fish	2.50	8.50	10.00	19.00
11. Rays	2.00	10.00	10.75	15.00

Source : Socio economic evaluation and technology transfer division, (SEETTD), CMFRI.

Case Studies on Marine Fish Marketing

The Socio Economic Evaluation and Technology Transfer Division, (S.E.E.T.T.D.) of Central Marine Fisheries Institute, has conducted a few fish marketing studies at selected centres. One study was conducted in Quilon region taking Neendakara Fisheries Harbour as the primary market and another in Ernakulam region taking Cochin Fisheries Harbour as a the primary market. The other study pertains to Madras region of Tamil Nadu taking Pudumanikuppam as primary market and a number of city markets.

(i) Seasonal Variation

Very wide seasonal variations in the prices of different varieties of fish have been observed both at primary and consumer markets. The quarterly variation in landing centre price is very wide for sharks, rays, thread-fin breams and cuttle fish and it is reasonably high, in the case of wolf herring, white fish and lesser sardines. (Table 5). Among these varieties, a portion of the landing of sharks, rays, threadfin breams and while fish go for curing and drying but cuttle fish is having export demand.

But the wide fluctuation in landing centre price is not reflected in the retail prices of some varieties like shark in the local markets. Because of the near monopolistic situation at the wholesale level which has been much facilitated by the available processing facilities for the respective varieties, the supply is controlled at the wholesale as well as retail levels and prices are maintained at a higher level even during the period of peak landings. However, the wide seasonal fluctuation of the price of lesser sardines was in accordance with its volume of landings. On the whole it was found that the seasonal fluctuation in fish prices at the producer level was wider as compared to consumer level.

(ii) Share of Fishermen and Middlemen in Consumer Rupee:

Studies conducted in the Neendakara region (1981) indicated that the fisherman's share in the consumer rupee varied from 31 to 68 per cent for different varieties. The retailers' margin ranged from 11 to 25 per cent and the wholesalers' margin ranged from 15 to 37 per cent of the consumer price. Marketing expenses which constitute mainly transportation and handling charges ranged from six to seven per cent. The study conducted at Ernakulam region indicated that the fishermen's share in consumers' rupee varied from 40 to 65 per cent.

In the Madras region the fishermen's share in consumers' rupee ranged from 32 to 72 paise for different varieties (1984-85). The share of marketing expenditure in consumers' rupee ranged from four to 14 paise. The wholesalers' margin was minimum (four paise) for pomfrets and maximum (27 paise) for sharks. The retailers' got the highest margin for silverbellies (45 paise), minimum for ribbon fish (18 paise). The study further indicated that a good number of varieties of fish which have been till recently considered trash fish have picked up consumer preference and fetched comparatively higher price. Fishermen's share and marketing margins in consumer rupee for different varieties of fish during 1989-90, in Kanyakumari-Tuticorin regions of Tamil Nadu is given in Table 6.

Table 5 : Seasonal price variation in primary and retail fish markets for different varieties (1989-90)

Variety	Minimum			Maximum		
	Landing centre (Rs/kg)	Retail (Rs/kg)	Season	Landing centre (Rs/kg)	Retail (Rs/kg)	Season
Seer fish	21.60	28.30	Oct-Dec.	28.00	45.00	Apr-June
Rainbow runner	19.00	26.00	"	24.00	38.00	Jan-March
Pomfrets	18.00	27.00	"	24.65	39.00	Jan-March
Pig-face breams	9.00	17.00	"	17.00	28.00	"
Red snapper	7.00	15.00	"	12.00	24.00	Apr-June
Barracudas	9.00	16.00	"	17.00	27.00	Jan-March
Reef cod	7.00	15.00	"	12.00	23.00	"
Tuna	8.40	16.40	July-Sept.	13.30	24.85	"
Sharks	10.40	14.95	"	12.30	22.65	Apr-June
Cat fish	6.90	13.20	Oct-Dec.	10.55	20.55	Jan-June
Wolf herring	4.70	8.25	"	8.90	16.25	"
Mackerel	5.80	9.90	"	9.25	17.25	Apr-June
Scads	3.45	10.30	July-Sept..	6.10	14.85	"
Goat fish	3.20	6.75	"	5.30	15.15	"
Ribbon fish	4.00	8.50	"	5.00	14.00	"
Threadfin breams	2.55	4.75	Oct-Dec.	6.00	15.00	Jan-March
Rays	4.30	8.15	July-Sept.	4.70	11.75	Apr-June
Lizard fish	1.35	3.85	Oct-Dec.	4.00	10.10	Apr-June
Indian pellona	3.00	6.15	July-Sept.	5.20	11.60	"
Gold stripped sardine	3.55	7.60	"	7.30	15.30	"
White baits	2.70	6.45	"	5.75	14.65	"
Silver bellies	2.00	5.40	"	3.05	6.80	Jan-March

Source : Socio economic evaluation and technology transfer division, CMFRI.

Export Fish Marketing

The fishery sector has emerged as a potential foreign exchange earner over the years. This could be observed from the facts that, marine products exports has contributed 3.3 per cent of our total export and the export earnings has increased from Rs. 384.29 crores during 1983-84 to Rs. 2433 crores during 1993-94. About 10 per cent of the marine fish production has been exported during 1992-93.

The demand for sea food of the developed countries has been increasing over the years mainly due to the realisation of its high nutritive value and its utility in reducing the incidence of cardiac arrests and controlling some other common diseases. The present average annual per capital consumption of fish for the world as a whole is estimated at 12.4 kg (live weight equivalent).

The world demand for fish and fish products by 2000 AD has been estimated at 110 million ton-

nes against a global supply of about 100 million tonnes-the increase in demand is due to the growing population and health consciousness of the people.

Table 6 : Fishermen's share and marketing margin in consumer's rupee for different varieties (1989-90)

Variety	Percentage share to			
	Fishermen	Handling & transport	Whole-salers	Retaillers
Seer fish	63	3	10	24
Rainbow runner	60	3	10	27
Pomfrets	62	3	9	26
Pig-face breams	50	4	12	34
Red snapper	55	5	14	26
Barracudas	53	4	10	33
Reef cod	55	5	15	25
Tuna	55	4	13	28
Sharks	58	4	11	27
Cat fish	49	4	18	29
Wolf herring	53	6	11	30
Mackerel	54	6	6	34
Scads	43	7	11	39
Goat fish	37	5	17	41
Ribbon fish	41	5	14	40
Threadfin breams	46	6	14	34
Rays	39	4	11	46
Lizard fish	42	10	18	30
Indian pellona	44	6	14	36
Gold stripped sardine	43	5	14	38
White baits	41	5	14	40
Silver bellies	41	8	13	38

Source : SEETT Division, CMFRI

International Trade on Sea Food

The global fish production has been estimated at 96.9 million tonnes during 1991. China accounted for 13.6 per cent of the world's production followed by Japan (9.6 per cent) and former undivided USSR (9.5 per cent). The share of the developing countries in the world production was stable around 52-54 per cent over the past five years. The world marine products trade has gone up from US $ 17,111 million during 1983 to US $ 48,000 million in 1992. But India's share in global fish trade has declined from 2.06 per cent to 1.2 per cent during this period.

The foreign exchange earnings of Indian sea food export during 1993-94 was at Rs. 2433.33 crores through the sale of 2.24 lakh tonnes of marine products, registering a growth of 37.7 per cent in value and 13.49 per cent in quantity respectively. The unit value realised per kg has increased from Rs. 84.73 per kg in 1992-93 to Rs. 103.75 per kg in 1993-94, registering a growth of 22.4 per cent. The growth of Indian marine products export from 1983-84 to 1993-94 is given in Table 7.

Table 7 : Growth of Indian marine products export 1983-84 to 1993-94

Sl. No.	Year	Qty. in tonnes	Average unit value relation (Rs/kg)	Growth rate		Value in Rs. crores
				Quantity (%)	Value (%)	
1.	1983-84	92187	40.24	+18.87	+3.23	384.29
2.	1984-85	86187	44.59	– 7.02	+3.02	384.29
3.	1985-86	83651	47.58	– 2.94	+3.57	398.00
4.	1986-87	85843	53.66	+ 2.62	15.75	460.67
5.	1987-88	97179	54.66	13.21	15.31	531.20
6.	1988-89	99777	59.92	2.67	12.55	597.85
7.	1989-90	110843	57.29	11.09	6.21	634.99
8.	1990-91	139419	64.08	25.78	40.69	893.37
9.	1991-92	171820	80.08	23.24	54.01	1373.85
10.	1992-93	208602	84.73	21.41	28.46	1767.43
11.	1993-94	236678	103.75	+13.49	37.68	2433.33

Source : Marine products export review, MPEDA 1992-93

Indian marine products are exported to over 59 countries. Japan was the leading importer of Indian sea food products accounting for 14.77 per cent of our trade in terms of volume and 45.37 per cent in value during 1992-93. This is followed by USA

with about 9.65 per cent on total volume and 10.78 per cent of the gross earnings in 1992-93. The details of other fish importing countries from India are given in Table 8.

Table 8 : Country wise marine product export from India during 1992-93

Q: quantity in tonnes
V: value in Rs. crores

Sl. No.	Country	1992-1993			
		Quantity exported	Percentage to total	Value	Percentage to total
1.	Japan	41240	19.77	801.90	45.37
2.	Western Europe	67582	32.39	511.52	28.94
3.	USA	20141	9.65	190.48	10.78
4.	Singapore	15454	7.41	72.20	4.09
5.	Hongkong	40593	19.46	80.90	4.58
6.	UAE	5330	2.56	28.95	1.64
7.	Sri Lanka	3482	1.67	5.28	0.30
8.	Others	14780	7.09	76.19	4.30
	Grand Total	208602	100.00	1767.43	100.00

Source : Marine products export review, MPEDA, 1992-93

Major Items of Export:

The Indian sea food export comprises frozen shrimps, fresh/frozen squid, cuttle fish, lobsters, dried products, live items and miscellaneous items. Frozen shrimp accounts for 3566 per cent of the volume and 66.78 per cent of the value exported during 1992- 93. The quantity of shrimp exported during 1992-93 was 74,393 tonnes earning a foreign exchange of Rs. 118.26 crores. Out of this, Japan imported 34,600 tonnes, followed by Western Europe- 20,749 tonnes and USA-14,045 tonnes, India's share in the world's tuna market is only five percent (20 lakh tonnes). The particulars of item wise exports of Indian marine products are presented in Table 9.

The export of marine products from India, during 1992-93 was done through 13 ports. They are Cochin, Mangalore, Goa, Bombay, JNP (Bombay), Porbander, Kandla, Tuticorin, Madras, Vizag, Calcutta, Haldia & Okoha. Bombay accounted for 26.11 per cent of the volume of exports followed by Cochin 23.53 per cent. Marine products like live lobsters, crab, chilled fish, ornamental fish were air lifted thorough international airports.

Infra Structural Facilities

The infra structural facilities include freezing plants, canning plants, ice factories, fish meal

Table 8 : Country wise marine product export from India during 1992-93

Q: quantity in million
V: value in Rs. crores
$: dollar in millions

Sl. No.	Item	1992-93				
		Quantity	Percentage to total	Value	Percentage to total	Value in US Rs.
1.	Frozen shrimp	74393	35.66	1180.26	66.78	410.72
2.	Fresh/Frozen fish	75370	36.13	232.41	13.15	80.88
3.	Frozen squid	30364	14.56	151.90	8.59	52.86
4.	Cuttle fish	18981	9.10	118.88	6.73	41.37
5.	Frozen lobsters	1613	0.77	43.34	2.45	15.09
6.	Dried items	4233	2.03	18.02	1.02	6.27
7.	Live items	573	0.23	3.49	0.20	1.22
8.	Others	3075	1.47	19.13	1.08	6.66
	Total	208602	100.00	1767.43	100.00	615.06

Source : Marine products export review, MPEDA, 1992-93

plants, peeling sheds, cold storages, conveyances and processing plants. The sea food processing plants are mostly located around important fish landing centres like Porbander, Veraval, Bombay, Ratnagiri, Panjim, Karwar, Mangalore, Calicut, Cochin, Quilon, Tuticorin, Mandapam, Cuddalore, Madras, Viskhapatnam, Puri and Calcutta. The development of such infra structural facilities is vital for improving the quality of the marine products and is present level in our country is given in Table 10.

Table 10 : Infrastructure for the sea food processing industry 1992

	Category	Registered	Capacity tonnes/day
1.	Exporters	865	–
2.	Vessels	12499	–
3.	Freezing plants	248	2778.60
4.	Canning plants	23	81.50
5.	Ice plants	129	1894.00
6.	Fish meal plants	21	375.50
7.	Pre processing centres	921	2150.00
8.	Conveyances	483	–
9.	Cold storage	321	49775.00
10.	Other storage	371	–
11.	Agar agar plants	2	–
12.	IQF plants	52	209.30

Source: Marine products export review, MPEDA, 1992-93

The development of infrastructural facilities sill go a long way to increase our contribution of value added products which at present constitutes only 12 per cent of the total marine food export. Upto 1986, India was mostly supplying raw materials to the importing countries by exporting frozen shrimps. With the help of innovative technologies and policy support, export of value added products was initiated. As first step, IQF (individually Quick Frozen) units were established with an installed capacity of 210 tonnes per day producing 15 per cent of shrimps in IQF. During 1992-93, 8587 tonnes of IQF shrimps were exported earning Rs. 127.8 crores with the unit value of Rs. 148.80 per kg. Italy was the leading importer of IQF shrimp from India, followed by Japan and USA. The share of IQF shrimp in the total export of shrimp from India during 1992-93 was 11.54 per cent in volume and 10.83 per cent in value. Further improvements in the export of value added products will help India not only to become a global competitor but also create substantial domestic employment.

Conclusion and Policy Implications

Fish marketing in India is gradually transforming from primitive to modern stage. The involvement of a number of middlemen in the marketing chain adversely affects the interests of both fishermen and consumers. The basic amenities are not present in many of the markets to carry out the marketing activities properly. No proper grading or weighing is done for fresh fish and there is no proper sheds for auctioning or facilities for preservation at the marketing centres. Inefficient collection and distribution of fish results in concomitance of surplus and deficit in the internal marketing system. Lack of marketing infrastructure is another factor responsible for low returns to fishermen. It is not possible to provide the ice plants or cooling plants for each and every fishing village. Hence the government can provide these facilities for a cluster of closely located fishing villages, through fishermen co-operatives. After successful demonstration, these units can be handed over to local fishermen on equity participation.

The government's intervention in the fish marketing system through the state fisheries development corporations has not been successful due to various administrative and management lapses. The involvement of local fishermen in Fish Marketing Societies, may deliver the goods. Lack of proper institutional price support and exploitation by middlemen have discouraged the fishermen from increasing the fish production. Hence, the

government can announce support prices for all commercially important varieties. This can be achieved with the establishment of a public agency which can buy such surpluses. Such agencies should have well developed processing storage and distribution facilities.

Now our marine products exports' performance mostly depends on shrimp. Adequate attention should be given for product diversification and increase the quantum of value added products in our sea food export. The possibility of exploiting the tuna resources and its export potential should be explored.

Considering the importance of sea food as a potential foreign exchange earner as well as a supplementary protein diet, more emphasis needs to be given for the development of fishery sector in India.

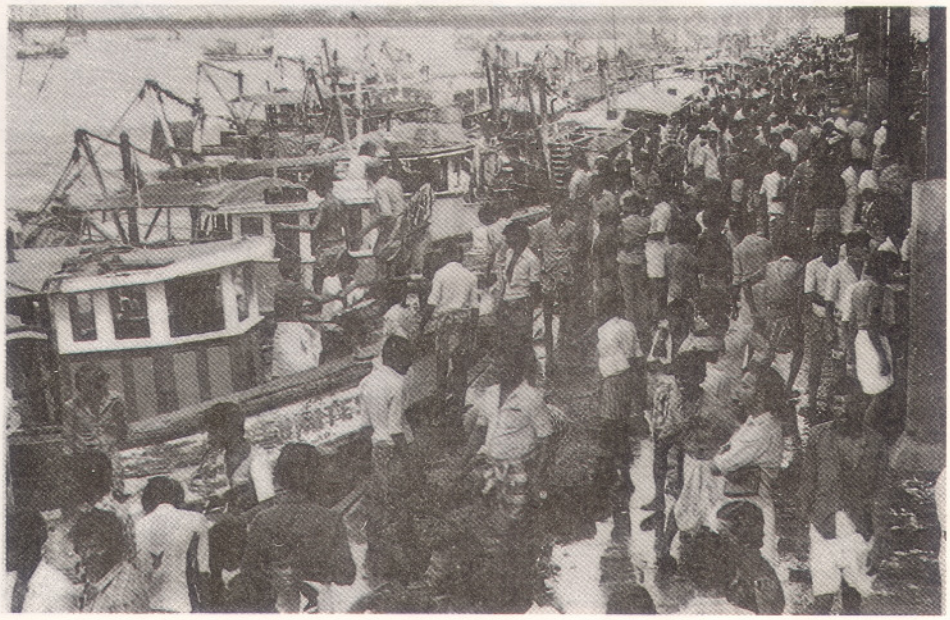

Plate 1 : Awaiting the arrival of boats

Plate 2 : Sorting of the catch and ready for auctioning

Plate 3 : Auctioning

Plate 4 : Sorting out fish wastes for fish meal plants

Plate 5 : Packing

Plate 6 : Distribution for long distance market